

Toth et al.

U.S. Serial No. 10/065,450

**IN THE CLAIMS**

Claims 1-37 (Canceled)

38. (Currently Amended) A method of generating an artifact score, the method comprising:

acquiring imaging data of a subject, the imaging data including a plurality of pixels;

partitioning the plurality of pixels into a first set and a second set, wherein the step of partitioning includes the step of generating a mask from the plurality of pixels and wherein the step of generating a mask further comprises the step of identifying a set of pixels within a range of an expected uniform material value;

initializing the first set to a base value;

comparing the first set to the second set that includes:

squaring each pixel of the second set of pixels;

summing the squared pixels;

dividing the summation by a mask pixel count to yield a quotient; and

modifying the quotient by a scalar, wherein the scalar is determined by statistically correlating trained observers responses to a reconstructed image of the imaging data;

determining an artifact index (AI) from the comparison; and

visually conveying the HAI.

39. Canceled.

40. Canceled

41. (Currently Amended) The method of claim 40-38 wherein the range is  $\pm 40$  CT numbers.

Toth et al.

U.S. Serial No. 10/065,450

42. (Currently Amended) The method of claim ~~40-38~~ further comprising isolating a region of the plurality of pixels absent visual artifacts.

43. (Currently Amended) The method of claim ~~40-38~~ further comprising the step of determining a numeric mean of the set of pixels within the range.

44. (Previously Presented) The method of claim 43 further comprising the step of subtracting the mean from each pixel of the plurality of pixels.

45. Canceled.

46. Canceled.

47. Canceled.

48. (Currently Amended) The method of claim ~~46-38~~ wherein the step of determining a helical artifact index includes the step of determining a likelihood of artifact presence in the reconstructed image by comparing the modified quotient to an artifact scale.

49. (Previously Presented) The method of claim 48 wherein the artifact scale has a maximum of ten and a minimum of one.

50. (Previously Presented) The method of claim 38 further comprising the step of filtering the imaging data with a two-dimensional array.

51. (Previously Presented) The method of claim 50 wherein the filtering two dimensional array includes a Hanning kernel.

Toth et al.

U.S. Serial No. 10/065,450

52. (Previously Presented) The method of claim 50 wherein the filtering two dimensional array has a five by five orientation.

53. (Previously Presented) The method of claim 38 wherein the base value is a whole number.

54. (Previously Presented) The method of claim 53 wherein the base value is zero.

55. (Previously Presented) The method of claim 38 wherein the subject includes a phantom designed to simulate an anatomical region of a patient.

56. (Previously Presented) The method of claim 38 wherein the step of acquiring the imaging data includes the step of acquiring CT imaging data of the phantom using a CT scanner.

57. (New) A method of generating an artifact score, the method comprising:  
acquiring imaging data of a subject, the imaging data including a plurality of pixels;

partitioning the plurality of pixels into a first set and a second set, wherein the step of partitioning includes the step of generating a mask from the plurality of pixels and wherein the step of generating a mask further comprises the step of identifying a set of pixels within a range of an expected uniform material value;

initializing the first set to a base value;

comparing the first set to the second set that includes:

squaring each pixel of the second set of pixels;

summing the squared pixels;

dividing the summation by a mask pixel count to yield a quotient; and

modifying the quotient by a scalar;

Toth et al.

U.S. Serial No. 10/065,450

determining an artifact index (AI) from the comparison that includes determining a likelihood of artifact presence in the reconstructed image by comparing the modified quotient to an artifact scale; and  
visually conveying the AI.

58. (New) The method of claim 48 wherein the artifact scale has a maximum of ten and a minimum of one.

59. (New) The method of claim 57 further comprising the step of filtering the imaging data with a two-dimensional array.

60. (New) The method of claim 59 wherein the filtering two dimensional array includes a Hanning kernel.

61. (New) The method of claim 59 wherein the filtering two dimensional array has a five by five orientation.

62. (New) The method of claim 57 wherein the base value is a whole number.

63. (New) The method of claim 62 wherein the base value is zero.

64. (New) The method of claim 57 wherein the subject includes a phantom designed to simulate an anatomical region of a patient.

65. (New) The method of claim 57 wherein the step of acquiring the imaging data includes the step of acquiring CT imaging data of the phantom using a CT scanner.

66. (New) The method of claim 57 wherein the range is  $\pm 40$  CT numbers.

Toth et al.

U.S. Serial No. 10/065,450

67. (New) The method of claim 57 further comprising isolating a region of the plurality of pixels absent visual artifacts.

68. (New) The method of claim 57 further comprising the step of determining a numeric mean of the set of pixels within the range.

69. (New) The method of claim 57 further comprising the step of subtracting the mean from each pixel of the plurality of pixels.